USPTO Customer No. 25280 Case 5014A

AMENDMENTS TO THE CLAIMS

In the Claims

Please amend the Claims as follows.

1. (Cancelled)

2. (Currently amended) A ~~textile woven~~ fabric-elastomer composite comprised of (a) a woven fabric having a face side and a back side, said woven fabric ~~having~~ consisting of warp yarns ~~made~~ consisting of natural fibers and filling yarns ~~made~~ consisting of natural fibers, and (b) ~~said woven fabric further having~~ an elastomer composition present on at least one side of said woven fabric, wherein said elastomer composition is a coagulated polymer latex ~~that is partially incorporated into said fabric such that a seamless transition between said fabric and said elastomer is created~~ consisting of a waterborne polymer latex, an acid-generating chemical, a cloud-point surfactant, and a foam-stabilizing surfactant, said coagulated polymer latex being a fine-structured coagulum suitable for subsequent transfer or film coating.

3. (Cancelled)

4. (Currently amended) The fabric-elastomer composite of Claim 2 wherein said ~~woven fabric is comprised of~~ natural fibers are selected from the group consisting of cotton, wool, ramie, and blends of these fibers.

5. (Currently amended) The fabric-elastomer composite of Claim 2 wherein said woven fabric ~~comprises~~ consists of cotton fibers.

6. (Previously presented) The fabric-elastomer composite of Claim 2 wherein said woven fabric has a satin weave construction.

7. (Previously presented) The fabric-elastomer composite of Claim 2 wherein said woven fabric has been napped on its face side prior to being coated with said elastomer composition.

8. (Original) The fabric-elastomer composite of Claim 7 wherein said woven fabric has been calendered after being napped and prior to being coated with said elastomer composition.

9. (Original) The fabric-elastomer composite of Claim 2 wherein said woven fabric has been calendered prior to being coated with said elastomer composition.

10. (Previously presented) The fabric-elastomer composite of Claim 2 wherein said elastomer composition is present on said back side of said woven fabric.

11. (Original) The fabric-elastomer composite of Claim 2 wherein said woven fabric has a pick count in the range of 20 to 80 picks per inch in the fill direction and an end count in the range of 30 to 90 ends per inch in the warp.

12. (Original) The fabric-elastomer composite of Claim 5 wherein said woven fabric is comprised of filling yarns having a cotton count in the range of 4/1 through 32/1 and 4/2 through 32/2.

13. (Original) The fabric-elastomer composite of Claim 5 wherein said woven fabric is comprised of warp yarns having a cotton count in the range of 8/1 through 32/1 and 8/2 through 32/2.

14. (Original) The fabric-elastomer composite of Claim 2 wherein said woven fabric has a weight in the range of one to 16 ounces per square yard.

15. (Original) The fabric-elastomer composite of Claim 14 wherein said woven fabric has weight in the range of 4 to 12 ounces per square yard.

16. (Original) The fabric-elastomer composite of Claim 14 wherein said woven fabric has a weight in the range of 6 to 8 ounces per square yard.

17 – 21. (Cancelled)

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ARGUMENT FOR PATENTABILITY

Summary of Claim Amendments

Claim 2 has been amended to recite that the textile-elastomer composite is comprised of a woven fabric made only of natural yarns and an elastomer composition consisting of a waterborne polymer latex, an acid-generating compound, a cloud-point surfactant, and a foam-stabilizing agent. Claim 4 has been amended to recite that the natural fibers are selected from those found in the Markush group. Claim 5 has been amended to recite that the woven fabric consists of cotton fibers. No new matter has been introduced with these amendments.

Rejection under 35 USC 103

Claims 2 and 4-16 are rejected under 35 USC 103(a) as being unpatentable over US Patent 4,109,038 to HAYASHI et al. in view of US Patent Application Publication No. 2003/0190853 to LOVINGOOD.

The argument presented in the Office Action is essentially as follows:

> HAYASHI et al. teach a suede-like raised woven fabric which comprises warp yarns and weft yarns and an elastic polymer applied to the fabric. The fibers can be natural fibers, such as wool or cotton. The elastic polymer can be solidified by coagulation. The woven fabric can have a satin weave construction. The raised fibers are napped fibers. The coating is applied to the back side surface or the surface which has the least amount of raised fibers, if both sides have undergone the raising process. The elastic polymer is impregnated into the fabric.
>
> HAYASHI et al. fail to teach calendering. LOVINGOOD is drawn to stretchy woven fabrics using natural yarns. LOVINGOOD teaches that the woven fabric can be napped or calendered on the surface. It would have been obvious to use calendering on the surface of the fabric of HAYASHI, as taught by LOVINGOOD, motivated by a desire to create a smooth surface of the woven fabric.

> It would have been obvious to have provided some of the natural fibers of LOVINGOOD to the weft of HAYASHI as a means to save money on the expensive composite yarns provided by HAYASHI, with the reasoned expectation that a fabric with a good surface texture as taught by LOVINGOOD would be produced.

As best understood, HAYASHI teaches a woven fabric, where the weft yarns are a either a single twist filament yarn or a loopy textured filament yarn (Col. 3, lines 15-19). HAYASHI specifically contemplates the use of multi-component yarns (e.g., hollow composite fibers or island-in-the-sea yarns) for the weft yarns. These yarns are synthetic. HAYASHI provides that the warp yarns are one of "a filament yarn; a spun yarn; a textured filament yarn...; a loopy textured filament yarn...; a mixed filament yarn; and a mixed spun yarn" (Col. 5, lines 53-59). The warp yarns may be synthetic or natural (Col. 5, lines 63-68). Thus, at least the weft yarns are synthetic.

LOVINGOOD is directed to the production of a chambray fabric, where a non-blended warp of one fiber type and a non-blended filling of a second fiber type are non-union dyed. In one embodiment, synthetic yarns are used in the warp direction, and cellulosic yarns (e.g., cotton) are used in the filling direction. LOVINGOOD, therefore, also teaches that at least one set of yarns are synthetic.

The present Claim 2, from which the remaining claims depend either directly or indirectly, recites that the warp and filling yarns of the subject fabric are made of natural fibers. This limitation is not taught by either HAYASHI or LOVINGOOD. Claim 2 also recites a coagulated elastomer composition comprised of four ingredients. The combination of HAYASHI and LOVINGOOD also fails to teach this limitation.

MPEP 2142 sets forth the requirements for establishing a *prima facie* case of obviousness:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicants submit that no *prima facie* case of obviousness exists with respect to each of the three basic criteria laid out above.

1. Motivation to Combine

To establish a *prima facie* case of obviousness, there must be some motivation to combine the references. In this instance, the Office has suggested that the motivation to combine the references is a desire to create a smooth surface on a woven fabric (as taught by HAYASHI) using calendering (as taught by LOVINGOOD) and a desire to create a less expensive fabric by substituting less expensive, natural yarns (as taught by LOVINGOOD) into the weft of HAYASHI.

In describing the proposed motivation to the combine the references, Applicants cannot help but notice that the Office appears to be focused primarily on the fabric construction and to a much lesser extent on the coagulated elastomer composition applied thereto

and the properties imparted by the coagulated elastomer composition. The present application uses a multi-component elastomer composition to create a coagulated polymer latex onto which a transfer or film coating layer may be subsequently applied to produce an artificial leather (page 1, lines 9-10). Additionally, the processing of the woven fabric—for example, by napping (as in claim 7), calendering (as in claim 9), and calendering and napping (as in claim 8)—contribute to the creation of the compressibility, pliability, and drape that are characteristic of high quality leather (page 1, lines 7-12).

The HAYASHI reference teaches that the surface of their fabric is "raised by using a conventional raising machine, such as emery raising machine, teazel raising machine, or wire raising machine" (Col. 6, lines 20-23). The objective of the HAYASHI processing is to "raise fibers from the surface portion of the weft yarns so that they stand essentially upright to form the raised portion" (Col. 6, lines 23-30).

LOVINGOOD makes the following statements regarding calendering as part of the finishing processes for a conventional woven fabric (page 3, paragraph [0032]):

> If finishing treatments are also utilized, those are performed in step 36. Such finishing steps might include surface treatments (such as napping, calendering, and the like) or the addition of chemical treatment to improve certain aesthetic characteristics of the fabric.

LOVINGOOD does not provide any affirmative endorsement of napping or calendering as a finishing method (saying instead "if finishing treatments are utilized" and "such finishing steps might include"). In fact, LOVINGOOD provides no further statements whatsoever regarding the potential benefits of these particular finishing methods and, to the contrary, describes the use of sanforization in the treatment of his inventive fabric (paragraph [0033]).

Thus, it appears to Applicants that, since LOVINGOOD fails to endorse napping and/or calendering, and since HAYASHI actually teaches away from calendering by producing a raised surface, the first proposed motivation provided by the Office for combining LOVINGOOD and HAYASHI is flawed.

As to the second proposed motivation to combine LOVINGOOD's less expensive, natural fibers into the weft of HAYASHI, Applicants fail to see the benefit of such combination. HAYASHI teaches that the selection of weft yarns is critical to the production of "a soft fuzzy fibrous surface" (Col. 5, line 34), because it is the weft yarns that are "covered with numerous fine fibers formed from these components as divided" (Col. 4, line 66 – Col. 5, line 2). Substituting LOVINGOOD's less expensive natural (i.e., cotton) yarns for the multi-component yarns of HAYASHI would assuredly reduce the production costs of the fabric. However, Applicants submit that if the same effect were achievable using an all-natural fabric substrate, HAYASHI would disclose such a fabric, which he does not.

2. Likelihood of Success

Another requirement for establishing a *prima facie* case of obviousness is that there is a reasonable likelihood that the combination of the references will be successful. In the present case, Applicants submit that combining the teachings of LOVINGOOD (e.g., of calendering the fabric) would render the HAYASHI fabric unsuitable for its intended purpose. Specifically, calendering the HAYASHI fabric would flatten it, destroying the fibers raised by the raising process, which are necessary to produce the desired suede-like feel.

Furthermore, substituting LOVINGOOD's cotton yarns for HAYASHI's multi-component yarns would not result in the intended product. Applicants believe that cotton yarns are incapable of withstanding the vigorous fiber-raising processes taught by HAYASHI, which include raising the fibers with an emery raising machine, a teazel raising machine, or a wire raising machine (Col. 6, lines 30). Subjecting cotton fibers to such processes that are intended to raise and/or divide the fibers would destroy the cotton fibers and render the fabric unsuitable for treatment with an elastomer composition.

3. *Teaching of All Limitations*

Regardless of whether the references are properly combined or whether there is a reasonable expectation of success in combining the references, the combination of HAYASHI and LOVINGOOD fails to provide a teaching of all of the limitations of Applicants' claims.

Claim 2, from which the remaining claims depend directly or indirectly, is directed to a composite made of a woven fabric consisting of natural warp and filling yarns, which has been coated on at least one side with a coagulated polymer latex, the coagulated polymer latex being comprised of four components and producing a fine scale coagulum suitable for transfer or film coating.

Neither the HAYASHI reference nor the LOVINGOOD reference provides any teaching of a woven fabric having natural warp and fill yarns, where the woven fabric has a coagulated elastomeric coating on at least one side. In both references, at least one set of yarns must be synthetic. In the HAYASHI reference, the weft yarns are synthetic loopy textured filament yarns or single twist filament yarns, so that the raising process splits the filaments and creates a suede-like feel. In the LOVINGOOD reference, one

set of yarns is synthetic and the opposite set is natural, so that differential dyeing may occur to produce a chambray appearance.

Further, neither of the references (either alone or in combination) provides a teaching of such a coagulated elastomeric coating. HAYASHI describes an "elastic polymer" coating and provides a list of possible polymer materials, including natural rubber and synthetic elastic polymers (Col. 6, lines 52-63). The elastic polymer is put into the form of a solution or emulsion and applied to the fabric (e.g., by emulsion as described in Example 1 and 4). HAYASHI fails to teach the incorporation of acid-generating compounds, cloud-point surfactants, or foam-stabilizing agents into the elastic polymer, which produce the fine-scale coagulum of the present claims. LOVINGOOD provides no teaching whatsoever of a coating composition for textile substrates.

As described in the present application, the elastomer composition includes a waterborne polymer latex, an acid-generating chemical, a cloud-point surfactant, and a foam-stabilizing surfactant (page 5, lines 10-14). The elastomer composition is applied as a foam, after which the coated fabric is heated, thereby generating an acid, gelling the cloud-point surfactant, and coagulating the coating composition over the fabric. This process results in a softer and more pliable substrate than that produced with immersion coating (as described in the present Examples 5 and 6) and that produced with polymers alone. Thus, HAYASHI's "elastic polymer" is different from Applicant's "elastomer composition."

MPEP 2143.03 states, in part:

> "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

In the present instance, Applicants believe that the combination of HAYASHI and LOVINGOOD fails to teach all of the limitations of the claims. Thus, on the third test for establishing a *prima facie* case of obviousness, the combination is insufficient.

For the foregoing reasons, Applicants believe that no *prima facie* case of obviousness exists. Accordingly, Applicants respectfully request the withdrawal of the rejection of Claims 2 and 4-16.

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